Annual Drinking Water Quality Report
Fort Dix, New Jersey
For the Year 2001, results from the Year 2000

We are pleased to present to you this year's Annual Drinking Water Quality Report. This report is designed to inform you about the quality water and services we deliver to you every day. Our constant goal is to provide you with a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and protect our water resources.

We are committed to ensuring the quality of your water. The drinking water being delivered to you is pumped from the Greenwood Branch of Rancocas Creek and Potomac-Raritan-Magothy (PRM) Aquifer System as well as Englishtown, Cohansey, and Wenonah-Mt. Laurel Aquifers.

Fort Dix is currently permitted to divert raw water from the Greenwood Branch, Rancocas Creek. The water is transmitted from the intake and pumping station in New Lisbon to the water filtration plant at Fort Dix via two 16-inch transmission mains.

The Greenwood Branch of the Rancocas Creek is located immediately south of Fort Dix and flows westward into the Delaware River. The sluiceway discharges to a 36-inch diameter pipe that empties into an open sump located in the pumping station. At this point, lime is added to the water and then it is pumped by the 1,000 gallons per minute (GPM) submersible pumps through two 16-inch water transmission lines approximately 4 miles to the Fort Dix Water Filtration Plant.

Water diverted from the Rancocas Creek is restricted under Fort Dix's water allocation permit, which sets a maximum permissible diversion flow rate. Restrictions within the permit limits Fort Dix from withdrawing any surface water from the Rancocas Creek if the downstream flow rate falls below the minimum flow rate in the permit.

The water from Rancocas Creek is classified as Fresh Waters, Category Two (FW-2) Non-Trout. The water classification declines from generally good to poor from the headwater segments of the Rancocas Creek to the main stream. Degradation takes place primarily around developed areas. Agricultural runoff and failing septic systems are the primary causes of pollution in the headwaters of Greenwood Branch of the Rancocas Creek.

The Fort Dix Water Treatment Facility is a conventional rapid sand filter plant, which provides multi-media filters, rapid mixing, flocculation and sedimentation. The main source of raw water for the water filtration plant is from the Greenwood Branch of the Rancocas Creek. Additionally, on a need-only basis, the water filtration plant receives groundwater from Well No. 4. In the past few years, several components of the water filtration facility along with the raw water transmission lines from the New Lisbon Pumping Station have been upgraded. Construction of a new sedimentation basin at the water filtration plant has augmented the detention time in order to increase the removal efficiency of the existing sedimentation facilities.

The recently completed improvements at the Water Filtration Plant have improved the

potable water supply quality, but have not increased the treatment capacity of the facility. Improvements in calendar year 2000 included replacement of the water filtration plant main filter and the lime feed equipment at both the treatment plant and the New Lisbon pumping station, respectively.

Future improvement projects for the water treatment plant and groundwater wells include installation of an automated-chlorine analysis and injection system for two of the main cantonment area wells, as well as the surface treatment plant.

Fort Dix is currently permitted to divert groundwater from five main wells located within Fort Dix cantonment area, Well Nos. 1, 2, 4, 5 and 6, as well a number of range wells. Wells that are located within a depleted portion of the NJDEP's Water Supply Critical Area No. 2, the PRM aquifer, are subject to withdrawal limitations.

Groundwater supplies exhibit concentrations of iron, manganese and turbidity levels (established turbidity levels are for surface water) above the recommended limits. Wells No. 5 and No. 6 are equipped with pressurized green sand filters for the removal of iron and manganese. Well No. 4 has a valve to feed well water directly into the system, or to the flocculator tanks of the water treatment plant, where it may be treated along with the surface water. Well Nos. 1, 2 and 4 are used only intermittently as standby water sources.

To date, the Bureau of Safe Drinking Water has not completed an assessment for our sources of drinking water. Source water assessments will be completed for all sources of public drinking water by May 2003. The Environmental Office has a source water protection plan that provides more information such as potential sources of contamination.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

The Fort Dix Water Filtration Plant routinely monitors for contaminants in your drinking water according to Federal and State laws. The following table shows the results of our monitoring for the period of January 1st to December 31st, 2000.

TEST RESULTS						
Contaminant	**Violation Y/N**	**Level Detected**	**Units of Measurement**	**MCLG**	**MCL**	**Likely Source of Contamination**
Microbiological Contaminants						
Total coliform Bacteria	NO	0		0	*	Naturally present in the environment * presence of coliform bacteria in 5% of monthly samples
Turbidity	NO	0.364	NTU	0.5	0.5	Soil runoff
Inorganic Contaminants:						
Antimony	NO	<0.001	ppb	6	6	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder
Arsenic	NO	<0.001	ppb	n/a	50	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Barium	NO	0.028	ppm	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Beryllium	NO	<0.001	ppb	4	4	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries
Cadmium	NO	<0.001	ppb	5	5	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints
Chromium	NO	<0.001	ppb	100	100	Discharge from steel and pulp mills; erosion of natural deposits

TEST RESULTS (continues)						
Contaminant	**Violation Y/N**	**Level Detected**	**Units of Measurement**	**MCLG**	**MCL**	**Likely Source of Contamination**
Copper	NO	0.134	mg/l	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Cyanide	NO	<0.001	ppb	200	200	Discharge from steel/metal factories; discharge from plastic and fertilizer factories
Fluoride	NO	0.64	ppm	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Lead	NO	0.008	ppb	0	AL=15	Corrosion of household plumbing systems, erosion of natural deposits
Mercury (inorganic)	NO	<0.0002	ppb	2	2	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills; runoff from cropland
Nitrate (as Nitrogen)	NO	0.06	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Nitrite (as Nitrogen)	NO	0.01	ppm	1	1	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Selenium	NO	<0.001	ppb	50	50	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines

TEST RESULTS (continues)						
Contaminant	**Violation Y/N**	**Level Detected**	**Units of Measurement**	**MCLG**	**MCL**	**Likely Source of Contamination**
Thallium	NO	<0.001	ppb	0.5	2	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories
Volatile Organic Contaminants						
Benzene	NO	<0.07	ppb	0	1	Discharge from factories; leaching from gas storage tanks and landfills
Carbon Tetrachloride	NO	<0.16	ppb	0	2	Discharge from chemical plants and other industrial activities
Chlorobenzene (Monochloro-benzene)	NO	<0.25	ppb	100	50	Discharge from chemical and agricultural chemical factories
o-Dichlorobenzene	NO	0.19	ppb	600	600	Discharge from industrial chemical factories
p-Dichlorobenzene	NO	0.19	ppb	75	75	Discharge from industrial chemical factories
1,2 - Dichloroethane	NO	<0.15	ppb	0	2	Discharge from industrial chemical factories
1,1 - Dichloroethylene	NO	<0.18	ppb	7	2	Discharge from industrial chemical factories
Cis-1,2-dichloroethylene	NO	<0.09	ppb	70	70	Discharge from industrial chemical Factories
Trans - 1,2 -Dichloroethylene	NO	<0.20	ppb	100	100	Discharge from industrial chemical factories
Dichloromethane (Methylene chloride)	NO	<0.07	ppb	0	3	Discharge from pharmaceutical and chemical factories
1,2-Dichloropropane	NO	<0.22	ppb	0	5	Discharge from industrial chemical factories

TEST RESULTS (continues)						
Contaminant	**Violation Y/N**	**Level Detected**	**Units of Measurement**	**MCLG**	**MCL**	**Likely Source of Contamination**
Ethylbenzene	NO	<0.08	ppb	700	700	Discharge from petroleum refineries
Styrene	NO	<0.22	ppb	100	100	Discharge from rubber and plastic factories; leaching from landfills
Tetrachloroethylene	NO	<0.25	ppb	0	1	Leaching from PVC pipes; discharge from factories and dry cleaners
1,2,4 -Trichlorobenzene	NO	<0.28	ppb	70	9	Discharge from textile-finishing factories
1,1,1 – Trichloroethane	NO	<0.17	ppb	200	30	Discharge from metal degreasing sites and other factories
1,1,2 –Trichloroethane	NO	<0.18	ppb	3	3	Discharge from industrial chemical factories
Trichloroethylene	NO	<0.23	ppb	0	1	Discharge from metal degreasing sites and other factories
TTHM [Total trihalomethanes]	NO	17.9	ppb	N/A	100	By-product of drinking water chlorination
Toluene	NO	<0.10	ppm	1	1	Discharge from petroleum factories
Vinyl Chloride	NO	<0.12	ppb	0	2	Leaching from PVC piping; discharge from plastics factories
Xylenes	NO	<0.32	ppm	1	1	Discharge from petroleum factories; discharge from chemical factories
meta-dichlorobenzene	NO	1.60	ppb	600	600	Discharge from industrial chemical factories
1,1-dichloroethane	NO	<0.12	ppb	40	50	Discharge from metal degreasing sites and other factories
Methyl *tertiary* butyl ether (MTBE)	NO	<0.24	ppb	70	70	Leaking underground gasoline and fuel oil tanks. Gasoline and fuel oil spills.

TEST RESULTS (continues)						
Contaminant	**Violation Y/N**	**Level Detected**	**Units of Measurement**	**MCLG**	**MCL**	**Likely Source of Contamination**
Naphthalene	NO	<0.12	ppb	300	300	Discharge from industrial factories, exposure to mothballs
1,1,2,2-Tetrachloroethane	NO	<0.29	ppb	1	1	Discharge from industrial chemical factories

Secondary Contaminant	**Level Detected**	**Units of Measurement**	**RUL**
Iron	40	ppb	300
Manganese	10	ppb	50
Sodium	3.8	ppm	50

We have learned through our monitoring and testing that some contaminants have been detected. As you can see by the table, our system had no violations. We are proud that your drinking water meets or exceeds all Federal and State safety requirements.

The sources of drinking water include rivers and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas projection, mining, or farming.
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can, also come from gas stations, urban storm water runoff, and septic systems.
- Radioactive contaminants which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

DEFINITIONS

In the following table you will find many terms and abbreviations you might not be familiar with. To help you better understand these terms we've provided the following definitions:

Non-Detects (ND) - laboratory analysis indicates that the constituent is not present.

Parts per million (ppm) or Milligrams per liter (mg/l) - one part per million corresponds to one minute in two years or a single penny in $10,000.

Parts per billion (ppb) or Micrograms per liter - one part per billion corresponds to one minute in 2,000 years, or a single penny in $10,000,000.

Parts per trillion (ppt) or Nanograms per liter (nanograms/l) - one part per trillion corresponds to one minute in 2,000,000 years, or a single penny in $10,000,000,000.

Parts per quadrillion (ppq) or Picograms per liter (picograms/l) - one part per quadrillion corresponds to one minute in 2,000,000,000 years or one penny in $10,000,000,000,000.

Picocuries per liter (pCi/L) - picocuries per liter is a measure of the radioactivity in water.

Millirems per year (mrem/yr) - measure of radiation absorbed by the body.

Million Fibers per Liter (MFL) - million fibers per liter is a measure of the presence of asbestos fibers that are longer than 10 micrometers.

Nephelometric Turbidity Unit (NTU) - nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

Action Level - the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Treatment Technique (TT) - A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.

Maximum Contaminant Level - The "Maximum Allowed" (MCL) is the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Maximum Contaminant Level Goal -The "Goal"(MCLG) is the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

Secondary Contaminant- Substances that do not have an impact on health. Secondary Contaminants affect aesthetic qualities such as odor, taste or appearance. Secondary standards are recommendations, not mandates.

Recommended Upper Limit (RUL) – Recommended maximum concentration of secondary contaminants. These reflect aesthetic qualities such as odor, taste or appearance. RUL's are recommendations, not mandates.

Iron

The secondary Recommended Upper Limit (RUL) for iron is based on unpleasant taste of the water and staining of laundry. Iron is an essential nutrient, but some people who drink water with iron levels well above the RUL could develop deposits of iron in a number of organs in the body.

Manganese

The secondary Recommended Upper Limit (RUL) for manganese is based on staining of laundry. Manganese is an essential nutrient, and toxicity is not expected from levels which would be encountered in drinking water.

Sodium

For healthy individuals the sodium intake from water is not important, because a much greater amount of sodium takes place from salt in the diet. However sodium levels above the Recommended Upper Limit (RUL) may be of concern to individuals on a sodium restricted diet.

The Safe Drinking Water Act regulations allow monitoring waivers to reduce or eliminate the monitoring requirements for asbestos, volatile organic chemicals and synthetic organic chemicals. Our system received monitoring waivers for all Pesticides and Herbicides contaminants.

Most data in the CCR will be from 2000, however, if the system has monitoring waivers, or for another reason monitors less than once per year, the system must use the most recent data. If the CCR contains detection data that is not from 2000, the Table of Detected Contaminants must show the date of monitoring and the CCR must contain a brief statement explaining that the data presented is from the most recent monitoring done in compliance with regulations. (Note that data older than five years should not be used.) In addition, if the CCR contains detection data that is not from 2000, the CCR must contain a brief statement explaining that the data presented is from the most recent monitoring done in compliance with regulations. EPA provides the following sample language: **The state allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, is more than one year old.**

(1) Turbidity. Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

Radioactive Contaminants:

(2) Copper. Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water-containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's disease should consult their personal doctor.

(3) Fluoride. Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Children may get mottled teeth.

(4) Lead. Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

(5) Nitrate. Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.

(6) Nitrite. Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.
(7) TTHMs [Total Trihalomethanes]. Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer. TTHMs are a by-product of the chlorine disinfection process.
Special considerations regarding children, pregnant women, nursing mothers, and others: Children may receive a slightly higher amount of a contaminant present in the water than do adults, on a body weight basis, because they may drink a greater amount of water per pound of body weight than do adults. For this reason, reproductive or developmental effects are used for calculating a drinking water standard if these effects occur at lower levels than other health effects of concern. If there is insufficient toxicity information for a chemical (for example, lack of data on reproductive or developmental effects), an extra uncertainty factor may be incorporated into the calculation of the drinking water standard, thus making the standard more stringent, to account for additional uncertainties regarding these effects. In the cases of lead and nitrate, effects on infants and children are the health endpoints upon which the standards are based.

Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should ask advice from your health care provider.

Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline (1-800-426-4791).

Some people who drink water containing trihalomethanes in excess of the MCL over many years experience problems with their liver, kidneys, or central nervous systems, and may have increased risk of getting cancer.

We at Fort Dix Water Filtration Plant work hard to provide top quality water to every tap. We ask that all our customers help us protect our water sources, which are the heart of the Fort Dix community, our way of life and our children's future. Please call our office if you have questions. Our point of contact at Fort Dix is Mr. Knighten, Water Filtration Plant Foreman: you can contact him between 0800 - 1600 phone #562-5040/5468.